

**CALIFORNIA DEPARTMENT OF PESTICIDE REGULATION**  
**PUBLIC REPORT 2006-02**

**Device -- Electrical**

Tracking ID Numbers 188131 and 201582

DESCRIPTION OF ACTION

Etex Ltd. (Etex) submitted an application seeking California registration of their electrical device, Electro-Gun (U.S. EPA Establishment Number EST 55850-NV-001). The Electro-Gun is a hand-held electronic system that combines high frequency and high voltage to overcome wood's natural resistance to electrical current flow. The system allows electrical current to penetrate wood and flow into the galleries and nests of drywood termites, killing them by electrical shock. Pest control operators acquire the device through lease agreements with Etex. Etex trains and certifies inspectors/applicators to use the device. The device is intended for use as a localized treatment with limitations based upon the location and size of drywood termite infestations.

BACKGROUND

Registrant:	Etex Ltd.
Device type:	Electrical
Brand name:	BP-2000 Electro-Gun
Pests controlled:	Drywood termites
Type of registration:	Full registration

Pursuant to Food and Agricultural Code (FAC) Division 7, Chapter 7.5, sections 1530-15340, all structural pest control devices, as defined, must be registered with the Department of Pesticide Regulation. FAC section 15300 defines structural pest control devices as "...any method, instrument, or contrivance intended to be used to prevent, eliminate, destroy, repel, attract, or mitigate any wood destroying pest..." "Wood destroying pest" includes, insects such as woodborers and termites.

SCIENTIFIC REVIEW

**A. Health and Safety**

An evaluation of the data submitted by Etex is sufficient to estimate worker safety and the safety of bystanders. The operator directions have been modified to include an electrical-medical device warning for operators and persons who may potentially enter the treatment areas. Additionally, a warning sticker is attached to all devices for use in California, which alert persons that use of the Electro-Gun may damage electrical-medical devices.

## **B. Efficacy**

Submitted data indicate electrocution provides adequate control of drywood termites. One study, (1984) conducted by Dr. Walter Ebeling, Professor Entomology at University of California, Los Angeles (UCLA), documented the affect electricity has on drywood termites in both laboratory and field settings. The laboratory study used artificially generated insect galleries made with Douglas fir 2X4's and a router. Live termite nymphs were placed into the artificial galleries (furrows), which were covered with a glass plate to allow observation. The probe of the Electro-Gun was inserted into a hole, which was drilled at an angle, to within ¼ inch of either end of the furrow. The treated termites were dissected and the intestinal protozoa in their hindgut examined. Two hours after treatment, the termites were still alive, but moribund. However, all the protozoa in the treated termite group were dead. Without live protozoa, the termites stop feeding, and eventually die. The untreated group reported live protozoa and no termite mortalities.

Dr. Ebeling also followed two Electro-Gun applicators in the field over a period of eight months, and documented his observations. After one application, a piece of treated wood was taken back to the laboratory and observed over a 57-day period. Six days after treatment, Dr. Ebeling reported 74 percent mortality. In a second observation, made 26 days after treatment, Dr. Ebeling reported 81 percent mortality. The final observation, made 57 days after treatment, showed 96 percent termite mortality. The untreated wood noted no termite mortality.

## **C. Property Damage**

Under contract, Dr. J. Woody Ju, professor and chair in the Civil and Environmental Engineering Department at UCLA, evaluated journal articles and data submitted by Etex. In his report, Dr. Ju recommended that additional trials be performed to obtain information regarding the structural integrity of treatment sites following the use of this device to control drywood termites. Etex contracted Marcon Forensics to demonstrate the physical effect of the Electro-Gun on typical construction wood members. Marcon Forensics developed a study protocol based on Dr. Ju's recommendations and presented it to DPR for review and approval. The results of the study showed no warping of any test specimens, regardless of type, thickness or material during, or as the result of, the Electro-Gun application. The study also found that the temperature spread varied randomly with increasing treatment time. No correlation was observed between increasing treatment time and temperature change. The Electro-Gun treatments did not produce any structural change or damage to any of the 62 wooden specimens tested.

## CONCLUSION

DPR and UCLA staff evaluated the submitted training videos, manuals, brochures, product labeling, scientific literature, and data, and found them to be acceptable to support registration of the Electro-Gun. The precautionary language and training provided with the device adequately mitigate potential health risks to persons who may use the device and bystanders that may enter during a treatment. DPR does not expect significant adverse environmental impacts to either human health or the environment to result from registration of this device for use in California.